

1           1. A method comprising:  
2           forming a data frame comprising a header field, a payload field, and a framewide parity field,  
3 wherein said payload field comprises a first parity subfield;  
4           populating said framewide parity field with at least one parity bit from a first error-control  
5 coding scheme that can detect at least  $i$  bit errors in said data frame, wherein  $i$  is a positive integer; and  
6           populating said first parity subfield with at least one parity bit from a second error-control  
7 coding scheme that can correct at least  $j$  bit errors in said header field, wherein  $j$  is a positive integer.

1           2. The method of claim 1 wherein  $j \geq i$ .

1           3. The method of claim 1 wherein said at least one parity bit from said second error-control  
2 coding scheme can correct at least  $j$  bit errors in said payload field.

1           4. The method of claim 1 wherein said second error-control coding scheme is a block error-  
2 control coding scheme.

1           5. The method of claim 1 further comprising populating a second parity subfield with at least  
2 one parity bit from a third error-control coding scheme that can correct at least  $k$  bit errors in said  
3 payload field, wherein  $k$  is a positive integer.

1           6. The method of claim 5 wherein  $k \geq i$ .

1           7. The method of claim 5 wherein  $j \geq k$ .

1           8. The method of claim 5 wherein  $j \geq k \geq i$ .

1           9. An apparatus comprising:  
2           a processor for forming a data frame comprising a header field, a payload field, and a  
3 framewide parity field, wherein said payload field comprises a first parity subfield, for populating said  
4 framewide parity field with at least one parity bit from a first error-control coding scheme that can  
5 detect at least  $i$  bit errors in said data frame, wherein  $i$  is a positive integer, and for populating said first  
6 parity subfield with at least one parity bit from a second error-control coding scheme that can correct  
7 at least  $j$  bit errors in said header field, wherein  $j$  is a positive integer; and  
8           a transmitter for transmitting said data frame onto a shared-bandwidth telecommunication  
9 network.

1           10. The apparatus of claim 9 wherein  $j \geq i$ .

1           11. The apparatus of claim 9 wherein said at least one parity bit from a second error-control  
2 coding scheme can correct at least  $j$  bit errors in said payload field.

1           12. The apparatus of claim 9 wherein said second error-control coding scheme is a block  
2 error-control coding scheme.

1           13. The apparatus of claim 9 further comprising populating a second parity subfield with at  
2 least one parity bit from a third error-control coding scheme that can correct at least  $k$  bit errors in said  
3 payload field, wherein  $k$  is a positive integer.

1           14. The apparatus of claim 13 wherein  $k \geq i$ .

1           15. The apparatus of claim 13 wherein  $j \geq k$ .

1           16. The apparatus of claim 13 wherein  $j \geq k \geq i$ .

1           17. A method comprising:

2           forming a data frame comprising a header field, a payload field, and a framewide parity field,  
3 wherein said payload field comprises: a payload data subfield, a first parity subfield, and a second  
4 parity subfield;

5           populating said framewide parity field with at least one parity bit from a first error-control  
6 coding scheme that can detect at least  $i$  bit errors in said data frame, wherein  $i$  is a positive integer;

7           populating said first parity subfield with at least one parity bit from a second error-control  
8 coding scheme that can correct at least  $j$  bit errors in said data frame, wherein  $j$  is a positive integer;  
9 and

10          populating said second parity subfield with at least one parity bit from a third error-control  
11 coding scheme that can correct at least  $k$  bit errors in said payload data subfield, wherein  $k$  is a positive  
12 integer.

1           18. The method of claim 17 wherein  $j \geq i$ .

1           19. The method of claim 17 wherein  $j \geq k$ .

1           20. The method of claim 17 wherein  $j \geq k \geq i$ .

1           21. The method of claim 17 wherein said second error-control coding scheme is a block error-  
2 control coding scheme, and wherein said third error-control coding scheme is a block error-control  
3 coding scheme.